A. GENERAL INFORMATION:

1. Spill incident Number: 638020

2. Name of Location 8th OBI GBO NORTH DELIVERY LINE

3. Name of nearest community UNOYACE

4. State RIVERS LGA OBI GBO

5. Type of Production facility/Installation Pipeline Asset owner /District UIG / P I NEST

B. INCIDENT INFORMATION:

6. Details of incident
   a. Date of incident 22nd MARCH, 2011
   b. Date/Period of investigation, 25th MARCH, 2011
   c. Description of spill point environment
      - Firmed soil [Y] [N]
      - Loose soil [Y] [N]
      - Previously excavated area [Y] [N]
      - Under water [Y] [N]
      - Swampy [Y] [N]
      - Exposed pipe surface [Y] [N]
   d. Description of leak point (tick as applicable);
      - Drilled hole, [N]
      - Hack saw cut, [N]
      - Explosive tear, [Y] [N]
      - Complete Rupture [Y] [N]
      - Inward dent, [Y] [N]
      - Well head tampering [Y] [N]
      - Failed Weld-on illegal hot tap valve, [Y] [N]
      - Missing pipeline (flowline) [Y] [N]
      - Crude oil theft (illegal bunkering) point, [Y] [N]
      - Third party tampering with Clamp Bolt/Nut, [Y] [N]
      - Third party tampering with valve setting, [Y] [N]
      - Third party tampering with flange Nuts/bolts, [Y] [N]
      - Corrosion, [Y] [N]
      - Type: [Y] [N]
      - Saver-pit over flow, [Y] [N]
      - Surge vessel overflow, [Y] [N]
      - Outward dent [Y] [N]
      - Others (specify). [Y] [N]

   e. Spill point coordinates
      Northing: (MINNA MID-BEIT) 94252.50m
      Easting: 518043.46m

AFTER JOINT INVESTIGATION OF THE INCIDENT SPILL WAS FOUND TO BE DUE TO THIRD PARTY INTERFERENCE
C. RISK/DAMAGE ASSESSMENT

7. Type of environment of spill site:
   - Land ✓
   - Swamp
   - Water

Type of environment of which oil has spread:
   - Land ✓
   - Swamp
   - Water

8. Distance from the nearest sensitive habitat
   - Government reserved and designated protected area [ , m]
   - Drinking water source [ , m] NOT APPLICABLE
   - Built up area [ , m]
   - Farmlands [ , m]
   - Fish Farm/Pond [ , m]
   - Fishing net [ , m]
   - Others (specify).

9. Containment measures put in place;
   - Booms [ Y ] [ N ] ✓
   - Trench [ Y ] [ N ] ✓
   - Dyke [ Y ] [ N ] ✓

   - Others: _________________________________

10. Any pictures or video coverage? [ Y ] [ N ] ✓

11. Was there any disruption to the investigation? [ Y ] [ N ] ✓

If yes give brief description:

D. TYPE/NUMBERS OF PROPERTIES, IF ANY, FOUND WITHIN THE AREA OF SPREAD OF OIL

A. Structures / Properties

<table>
<thead>
<tr>
<th>S/N</th>
<th>Type of Structures</th>
<th>Description</th>
<th>Size</th>
<th>Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE, WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 2 of 7
B. Crops/Economic Trees

<table>
<thead>
<tr>
<th>S/N</th>
<th>Types of crops</th>
<th>Young</th>
<th>Medium</th>
<th>Matured</th>
<th>Quantity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Fish/Nets/Ponds

<table>
<thead>
<tr>
<th>S/N</th>
<th>Fish/Nets/Ponds</th>
<th>Description</th>
<th>Quantity/Size</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Others (Specify) i.e. Animal Traps

<table>
<thead>
<tr>
<th>S/N</th>
<th>Others</th>
<th>Description</th>
<th>Quantity/Size</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>WITHIN AREA OF IMPACT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E. GRAPHIC DESCRIPTION OF LEAK POINT (Details should be contained in leak repair report)

![Diagram of pipeline with leak and valves](image-url)

(1 No) 2" WELDED NIPPLE WITHOUT BALL VALVE AT 12 O' CLOCK POSITION.

2" WELDED NIPPLE WITH BALL VALVES (2 NO) INSTALLED AT 12 O' CLOCK POSITION.
**E. Coordinates**

**Impacted Area Boundary Co-ordinates**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Northing</th>
<th>Easting</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>94249.42m</td>
<td>518046.56m</td>
</tr>
<tr>
<td>24</td>
<td>94285.57m</td>
<td>518046.65m</td>
</tr>
<tr>
<td>25</td>
<td>94252.45m</td>
<td>518068.11m</td>
</tr>
<tr>
<td>26</td>
<td>94246.32m</td>
<td>518061.94m</td>
</tr>
</tbody>
</table>
G. INCIDENT INFORMATION:

17 Impacted Area Details
   a. Total calculated area of impact \( 0.012805 \text{ Ha} \)
   - Impact within SPDC R.O.W \( 0.012805 \text{ itq} \)
   - Impact outside R.O.W \( \text{Nil} \)

18 Volume of oil recovered before completion of JIV (\( V_{\text{rec}} \)):
   - Recovered oil \( V_{\text{rec}} \): \( \text{Nil} \) barrels

19. Computation of the residual volume on site
   a. Computation of the volume of pooled free phase oil (on land or confined water body).
      i. Area (m\(^2\)) occupied by pool of free phase oil \( 55.37 \text{ m}^2 \)
   ii. Average Depth (m) of pool of free phase oil \( 0.001 \text{ m} \)
      iii. Volume of pooled of free phase oil, \( V_{\text{pool}} \): \( 0.77 \) barrels

   b. Computation of volume of infiltrated oil in the soil (\( V-3 \)).
      i. Area (m\(^2\)) covered by the oil \( 18.44 \text{ m}^2 \)
      ii. Average Depth (m) below ground surface of infiltration of oil \( 0.005 \text{ m} \)
      iii. Soil type: Clay
      iv. \( \rho_e \) (effective porosity of the soil): \( 0.25 \)
      v. \( \text{Nil} \) barrels

20. Computation of volume of oil on open water based on standard coloration.

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Percentage coverage</th>
<th>Volume (m(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barely Visible</td>
<td>0.00004</td>
<td></td>
</tr>
<tr>
<td>Silvery</td>
<td>0.00008</td>
<td></td>
</tr>
<tr>
<td>Slight Colour</td>
<td>0.00015</td>
<td>( \text{Not} )</td>
</tr>
<tr>
<td>Bright Colour</td>
<td>0.0003</td>
<td>( \text{Applicable} )</td>
</tr>
<tr>
<td>Dull</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Dark</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Black oil</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Emulsion (30% Oil)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Percent Total 100% Total Volume \( \text{Nil} \) bbl

21. Calculation of evaporated volume:

i. Oil type: Bonny Medium

ii. E-Factor: 15% / 5%

iii. Volume of evaporated oil: 0.18 barrels

<table>
<thead>
<tr>
<th>Oil Type</th>
<th>Bonny Light</th>
<th>Bonny Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E-Factor</td>
<td>E-Factor</td>
</tr>
<tr>
<td>Period Since Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spill</td>
<td>&lt;1 day</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>1-7 days</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>&gt;7 days</td>
<td>40%</td>
</tr>
</tbody>
</table>

9. Gross Total Estimated Spilled Volume

\[ V_{est} (bbls) = V_{vap} (bbls) + V_{wat} (bbls) + V_{inf} (bbls) + V_{pool} (bbls) \]

\[ V_{est} (bbls) = 0.18 + 0.25 + 0.77 = 1.20 \text{ barrels} \]

10. Net Total Estimated Spilled Volume

\[ V_{est} (bbls) = V_{vap} (bbls) + 0.6*V_{wat} (bbls) + V_{inf} (bbls) + V_{pool} (bbls) + V_{rec} (bbls) \]

\[ V_{est} (bbls) = 0.18 + 0.25 + 0.77 = 1.20 \text{ barrels} \]

*Calculation of respective estimated volume is to be done using the new spill estimation software on site
*Conversion of m³ to barrel is Total volume (m³) x 6.29
*Emulsification factor for spill on water to consider is 60% of volume of oil.

This report was filled and signed on the 25/03/20 at incident site by joint investigation representative from:

- Host Community
- Department of Petroleum Resources [DPR]
- National Oil Spill Detection and Response Agency [NOSDRA]
- State Ministry of Environment [SME]
- Nigeria Police Force [NPF]
- Shell Petroleum Development Company [SPDC]

Tick as applicable